

## A POURING AND SEALING ATTACHMENT

### TECHNICAL FIELD

This invention relates to a new pouring and sealing attachment of the kind adapted

5 to be mounted on a can and, more particularly, a paint can, but not limited thereto.

### BACKGROUND ART

Paint can attachments are well known for a variety of purposes. There are two broad types of paint pouring attachments, including a clip on spout, which facilitates pouring only, and a decanting spout which is usually formed as part of a

10 container lid (e.g. as used with automotive tints). However, they must be removed to reseal the container, and the stacking of containers with a spout is not possible.

Paint can attachments may also function as a brush wiper for removing excess paint from the brush after it has been dipped into the paint and usually also facilitates the outpouring of paint from the can.

15 However, most known attachments suffer from the disadvantage that they must be detached from the can to facilitate reclosing thereof which is necessary to prevent the deterioration of any remaining paint and to prevent the ingress of contaminants. This step is time consuming and can be very messy.

USA patent 5,568,879 discloses an add-on product which sits atop an existing, 20 fully featured (ie with metal handle, lid and triple-tite ring) paint tin. It is a stand-alone product which would be applied by the user. It offers no cost or feature advantage to a paint manufacturer, and increases the overall expense of the package to the end-user. After use, the spout / paintbrush-rest would be covered in wet paint and it would act as a dust and dirt collection area, contaminating paint 25 when next used.

Australian patent 676820 discloses a stand-alone product, which is, also attached to an existing, fully featured, paint tin. It uses the existing metal paint lid and does not have provisions for it draining or being retained. It would normally be purchased separately by the consumer. It does not have a cover for the pouring 30 spout. It is not nestable in a palletising sense in its current configuration and does not offer any advantage to paint manufacturers, only to consumers. There is no provision for a handle.

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WO 00/51908 discloses a top for a beverage can which is intended to be an additional item attached by the consumer. It is not suitable for use with a wide mouth container having a lid. Again it adds additional cost.

WO 03/045809 discloses a closure that seats on the external face of a container

- 5 rim. It is intended for use with beverages and is unsuitable for a wide mouth container such as a paint tin. There is no provision for a handle.

WO 98/19918 discloses a fitting for a container such as a gable topped container which is not suitable for lidded container and does not disclose means for securing the fitting to the rim of a wide mouthed container. There is no provision for a

- 10 handle.

Prior art such as Australian patent 737661, USA patents 4724979, 5975346, and 6360909, and WO 02/49931 disclose containers with hinged lids which have inherent design faults which restrict their use in the sealing and resealing of fluid products (liquids or powders).

- 15 Australian Patent 638039 discloses a container with an adaptor ring that encloses the rim of the container and which carries a lid. There is no pouring spout and the arrangement does not include a handle.

WO9515861 has a similar design but again is unable to provide an inexpensive arrangement which can provide a pouring spout and a handle.

- 20 It is an object of the present invention to provide an alternative pouring and sealing attachment for a container, such as a paint can or other similar can, which overcomes or at least ameliorates the above disadvantages of the prior art, or at least provides a clear alternative choice for consumers.

25 DISCLOSURE OF THE INVENTION

- According to one embodiment of the invention there is provided a pouring attachment adapted to be mounted on an annular rim of a can and which receives a lid allowing sealing and re-sealing of said can with said lid, said pouring attachment including an outer annular rim defining an annular space and inner circumferential wall against which lid sealingly abuts and lid retaining means for releasably securing the lid in the annular space for sealing and resealing of the can. The invention also relates to containers which include a pouring attachment of the type described.

The lid is a purpose-built lid for the pouring attachment, ideally integrally moulded therewith from solvent-resistant plastics material.

In one embodiment the present invention provides a container and lid combination comprising

- 5      a) a container having a bottom and an upstanding wall having a rim at the open end
- b) a closure element adapted to seat on the rim, said element having an internal flange that abuts and sealingly engages the internal edge of the rim
- c) a lid attached to the closure element and having a dependent internal flange adapted to sealingly engage an internal edge of the closure element
- 10     d) a handle attached to the closure element.

This arrangement avoids the necessity to form a complex rim such as the conventional triple tight seal in metal cans. A simple container may be formed with a bottom either in metal or synthetic plastic. To provide rigidity to the rim the edge 15 may be turned inwardly, flanged or beaded if made in plastic. An outwardly directed corrugation may be provided below the rim to stiffen the container rim and protect the clips and other protruding features. An outwardly directed corrugation may be provided below the rim to stiffen the container rim. This container construction enables cost savings in the manufacture of the container.

20     The provision of a closure element enables this part to be separately manufactured in plastic by injection moulding. The closure element preferably has an external dimension no greater than the external dimension of the container at the corrugation below the rim so that the corrugation makes it difficult to accidentally dislodge the closure element. The flange of the closure element preferably 25 incorporates a peripheral bead on its outer face to seat below the container rim and provide aggressive retention of the closure element on the container. The internal face of the closure element flange may incorporate a sealing bead or preferably a downwardly inclined sealing flange to abut the flange of the lid. The closure element may incorporate a pouring spout to allow decanting of the 30 container contents. Preferably, the outer edge of the closure element incorporates a forwardly or outwardly extending pouring spout and a brush-wipe edge extending radially inwardly towards the central annular space of the closure element. When a

pouring spout is incorporated into the closure element the internal sealing bead varies in height to ensure that it lies below the edge of the internal wiping edge.

A handle is attached to the closure element and allows the full container to be  
5 lifted. The handle may be attachable to the closure element by having the ends of  
the handle engage a slot in the closure element. Alternatively the ends of the  
handle may include a slot such as a key hole slot to engage a headed spigot  
moulded onto the closure elements rim. The handle is preferably integrally  
moulded with the closure element and the material is sufficiently flexible and  
10 strong to allow the handle to be raised and hinged at the junction of the handle  
ends to the closure element. The handle is preferably positioned to facilitate  
pouring from the container.

A lid may be integrally moulded with the closure element or may be removably  
attachable by a pin hinged or trunnion or clip structure to the retainer element. The  
15 lid incorporates a dependent flange which wipes past the internal sealing bead on  
the flange of the closure element and extends past the sealing bead. The  
dependent peripheral flange preferably is shaped to allow the lid to drain any  
contents back into the container. Preferably, the lid includes means whereby the lid  
may be propped open substantially perpendicular (from about 80° to about 90°) to  
20 the plane of the outer rim of the pouring attachment, to facilitate self-draining of  
paint from the underside of the lid back into the main container. To allow the lid to  
have one or more set positions, the lid hinges from the closed position to the open  
position(s) with the aid of an inbuilt cam and cam follower means. The lid may use  
any conventional hinge structure and may be permanently fixed to the closure  
25 element or if preferred the lid can be detachable from the closure element. This  
enables the end user to decide to remove the lid or retain the lid. A retained lid with  
fixed open positions does not interfere in the movement of the brush into and out  
of the can and allows any paint wiped onto the internal lid surface to drip back into  
the can.  
30 The closure of the lid is supplemented by one or more clips peripherally spaced  
about the outer edge of the closure element to securely hold the lid in sealing  
engagement with the closure element. These clips are dimensioned to not extend  
significantly beyond the periphery defined by the widest part of the container.

When the closure rim incorporates a spout the lid may have an extension to close over the edge of the spout.

- From a point of view of the manufacturer and retailer it is important that for shipping and storage that the external dimensions of the container are the same as
- 5 the conventional container of equivalent volume so that the number of containers per pallet is not reduced. Accordingly the external dimensions of the spout preferably lie within the widest periphery of the container body so that the pallet footprint of the container and lid is not increased. The lid may incorporate an upstanding peripheral rim on its upper surface to engage the bottom of a container
- 10 to facilitate positive nesting when stacking of the containers on a pallet or at point of sale.

#### BRIEF DESCRIPTION OF THE ACCOMPANYING DRAWINGS

The invention will be further described with reference to the accompanying

15 drawings relating to some non-limiting embodiments of the invention:-

- FIG. 1 is a top perspective view of a container, such as a paint can, according to one embodiment of the present invention wherein the upper end closure of the can includes a closure element with integral spout and a hinged lid for sealing/re-sealing of the container, and hinged lid retaining clips. The peripheral groove on the upper outer surface of the lid facilitates stackability or nesting;
- 20 FIG. 2 is a top perspective view of the container of Fig. 1 with the lid hinged in the open position;
- FIG. 3 is a cross-sectioned side elevational view of the container of Fig. 2, with the lid in the open position;
- 25 FIG. 4 is a cross-sectioned side elevational view of the container of Fig. 1, with the lid in the closed position;
- FIG. 5 is a top plan or top elevational view of retaining element and lid of Figs. 1-4, with the lid hinged fully open;
- FIG. 6 is a side elevational view of the closure of Fig. 5;
- 30 FIG. 7 is a cross-sectioned side elevational view of the closure of Fig. 6;
- FIG. 8 is a cross-sectioned side elevational view through the hinge of Fig. 5;
- FIG. 9 is an enlarged cross-sectioned elevational view through a typical section of the upper rim of the container and upper end closure in the closed position.

FIG. 10 is an enlarged cross-sectional elevation view through a section of the upper rim of the container with the closure element and lid hinged in the open position.

FIG. 11 is a top perspective view of two containers according to an embodiment of 5 the invention, demonstrating vertical stackability.

In the drawings, the following legend applies to the use of reference numerals.

LEGEND

1. Container with closure (e.g. paint can)
2. Container body
- 10 3. Upper end closure
4. Annular closure element
5. Lid
- 5a. Pouring spout
6. Spout cover
- 15 7. Clip
8. Clip engagement lug
9. Hinge
10. Annular groove
11. Base rim
- 20 12. Handle
13. Handle hinge
14. Upper face of lid (with brand logo)
15. Annular opening
16. Inner rim
- 25 17. Sealing flange
18. Draining rim of flange
19. Paint drops
20. Rolled lip
21. Lid held in draining position
- 30 22. Sealing flange for spout on lid
23. Sealing flange on closure element
24. Sealing extension on lid for spout
26. Sealing face on lid

28. Camming surface
29. Lid engagement means (open position)
30. Nesting engagement ramps

5 The embodiment illustrated in the drawings is a paint container 2 formed from tin plate with a closure 3 formed from polypropylene comprising a closure element 4 and lid 5. The container body 2 is formed from metal with a bottom formed with a base rim 11 and the rim at the open end formed with a rolled lip 20 and an outwardly projecting corrugation located below it. It is within the scope of this  
10 invention to use a synthetic plastic container body formed from a high density polyolefine such as high density polyethylene or polypropylene or polyethyleneterphthalate (PET) .

The closure element 4 defines an annular opening 15 into the container body 2 formed by the flange 16 which defines the inner face of the retainer element and  
15 seats on the rolled lip 20 . As shown in figures 3 and 4 the closure element s maximum external diameter below the rolled lip is less than the internal diameter of the container body 2. A bead on the outer face of the flange 16 snaps in below the rolled lip 20 to retain the element 4 on the container body 2. The element 4 incorporates a pouring spout 5A which is positioned below the height of the rim of  
20 the retaining element 4 to facilitate the flow of the liquid contents from the container. The sealing strip 23 which is positioned just below the upper internal edge of the flange 16 of the closure element, follows the contour of the spout 5A in the element 4 and provides a wiping edge behind the spout 5A.

An optional handle is provided, which folds up for use in carrying the container,  
25 and which may be folded down to either the spout side or to the opposite side of the container when not in use. The handle 12 is attached to the closure element 4 by a hinge 13 which may be a conventional pin hinge or may be provided by an integrally moulded handle. The handle is strong enough to support the weight of the filled container and the frictional grip of the bead on flange 16 below the rolled  
30 lip 20 is also sufficient to ensure that the filled container can be lifted using the handle 12.

The lid 5 is attached to the closure element 4 by the hinge arrangement 9. The hinge 9 as illustrated in figures 7 and 8 is injection moulded for retention on the

retaining element. As shown in figure 10 the lid incorporates a mating member 29 that engages the camming surface 28 on the retaining element so that the lid can assume a number of set positions such as 80° or 90° or any other angle.

Preferably the hinge 9 is of a type that allows the lid 5 to be detached from the

5 closure element 4. The lid incorporates a dependent flange 17 which is sufficiently deep adjacent the hinge 9 to ensure that the draining flange 18 projects beyond the internal edge of the closure element flange 16 so that any paint 19 on the lid 5 will drip back into the container as shown in figure 3. The portion 26 of flange 17 (shown in figure 9) aggressively abuts the strip 23 to provide a tight seal about the

10 opening 15. To secure the lid 5 tightly to the closure element 4 the lid incorporates clips 7 which snap over the retaining lugs 8 on the outer edge of the element 4.

The lid incorporates a spout cover 6 that encloses the spout 5A when the lid is closed. The contour of the edge of the flange 17 follows that of the sealing strip 23 so that the edge 22 abutting the wiping edge of the spout seals the lid against the

15 edge of the spout 5A when the lid is closed.

The lid incorporates a bearing surface 10 to take the weight of a stacked container and the lugs 30 locate the base of a container when the containers are stacked.

One or more of the positive action clips could include a tamper-evident seal, as could the handle or the pouring-spout in combination with its cover.

20 The components of the closure are suitably fabricated by standard injection moulding techniques using a polyolefine preferably a high density polypropylene or polyethylene. .

Some of the main features and benefits of the invention when applied to paint containers are summarized as follows:

- 25 • easy controlled pouring – no drips or runs down the side of the can;  
• paint is not trapped in the rim of the can – the sealing edge is self-draining;  
• large opening to allow proper stirring, mixing and the use of large brushes;  
• self-draining straight-edge for controlled brush wiping;  
• interlocks when stacking cans on top of each other (pallet, retail-display or at  
30 home);  
• lid is locked positively into position by clips - does not rely on friction;  
• does not increase packaging pallet footprint;  
• provides a self-draining seat for the lid while in use;

- integrated cover or lid prevents contact and dirt ingress to all surfaces covered with paint;
  - works with paint tins with handles on the body if so desired;
  - does not rust and is solvent resistant when made from suitable polymer;
- 5     • resilient polymeric construction retains shape even when dropped

Although the invention has been described with reference to paint containers it is not limited thereto. The invention is also suitable for the packaging of other fluid products, including both liquids and powders. The invention is also adaptable to the packaging of other products in general.

10    Although an exemplary embodiment of the invention has been shown and described, it will be apparent to those having ordinary skills in the art that a number of changes, modifications or alterations to the invention described herein may be made, none of which depart from the spirit of the present invention. All such changes, modifications and alterations should therefore be seen as being within the  
15    scope of the present invention.

It should be apparent that the present invention provides a substantial advance in the field of container manufacture, providing all of the herein-described advantages without incurring any relative disadvantages.